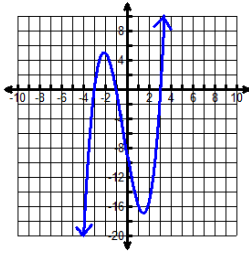


4.3 Key Features of Graphs (key, odds)

1.



b. y – intercept: $(0, -9)$

x – intercept: $(-1, 0), (-3, 0), (3, 0)$

c. Max: $(-2.10, 5.05)$

Min: $(1.43, -16.9)$

d. increase: $(-\infty, -2.10) \cup (1.43, \infty)$

decrease: $(-2.10, 1.43)$

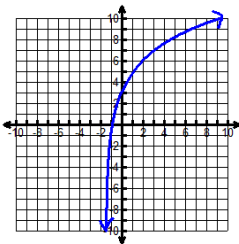
e. positive: $(-3, -1) \cup (3, \infty)$

negative: $(-\infty, -3) \cup (-1, 3)$

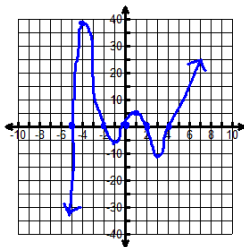
f. $\lim_{x \rightarrow \infty} f(x) = \infty$ $\lim_{x \rightarrow -\infty} f(x) = -\infty$

g. none

3.



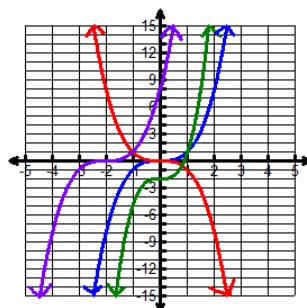
5.



7a. reflect over x -axis, odd

7b. vert. stretch of 3,
translate down 2, neither

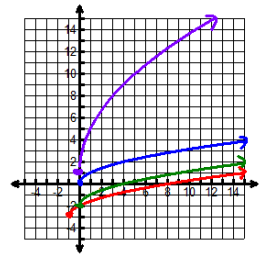
7c. translate left 2, neither



9a. translate left 1 & down 3, neither

9b. translate down 2, neither

9c. vert stretch of 4, translate up 1,
neither



11. f

13. a

15. e

17. j

19. b

21. 12

23. 12, 13, 14, 16, 17

25. 10, 16, 20

27. Domain: $(-\infty, \infty)$

Range: $[-3, \infty)$

29. Domain: $(-\infty, \infty)$

Range: $[0, \infty)$

31. a) Increasing $(6, \infty)$

b) local min. $(6, 0)$

33. a) increasing $(-\infty, \infty)$

b) no extrema

35. G, vertical stretch of 2, translate right 3 and up 5

37. J, translate left 2 and down 4

39. B, reflect over y -axis, vertical stretch of 2,
translate right 4

41. L, reflect over x -axis, vertical shrink of $\frac{1}{2}$,
translate right 3 and up 5

43. K, translate left 7 and up 2

45. F, reflect over x -axis, translate right 4